Task 13: Controller Entry/Retirement Age (C-ERA): Cross-sectional and Cross-lagged longitudinal examination of the current maximum age-at-entry and mandatory retirement age for ATCS. (Bleckley)

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University/Contract Performing Organization: TBD

Project Start Date: 1 October 2010 **Anticipated End Date:** On-going

Requirements Statement
Operational Shortfall or Knowledge Gap The FAA, in accordance with Public Law (92-297), requires Air Traffic Control Specialists (ATCS) to retire at age 56. This same statute delegated authority to the FAA Administrator for establishing maximum age at entry to the ATCS occupation and for establishing policy regarding issuing mandatory retirement waivers to a "controller having exceptional skills and experience." The basis for both the mandatory retirement age and the maximum age at entry rules has not been empirically established, and a review of the justification for this policy (and statute) exposes weaknesses in the research on which it was based.
Benefit in Closing the Shortfall or Gap This research will provide the FAA with a scientific basis for its policies concerning age-at-entry and the issuance of waivers to ATCSs past the age of 56. Based on this research, the FAA may also wish to address with Congress the advisability of revisiting Public Law 92-297. If ATCSs are able to remain effective on the job past age 56, the FAA would recoup more from its investment in the training of these specialists. The FAA would also benefit from the expertise that would be preserved through the retention of these employees. The value of extending the maximum age at entry is less easily seen, but the ability to offer veterans employment opportunities as ATCSs would increase the FAA's ability to support the Veteran's Reemployment Act. Additionally, developing a firmer scientific foundation for this FAA policy may reduce litigation and other actions taken against the FAA.

Description of the Desired Product A literature review and Cross-sectional and cross-lagged longitudinal research should provide the data needed to make legally defensible policy concerning maximum age at entry and mandatory retirement waiver policies. This research will also provide Congress with the data needed to determine whether to revisit Public Law 92-297.
Schedule December 2011 for C-ERA1

Background
The basis for both the mandatory retirement age and the maximum age at entry has not been empirically established, and a review of the justification for this policy (and statute) exposes weaknesses in the research on which it was based.

Broach and Schroeder (2005) reviewed the evidence used to support the "age 56" rule, and found it to be less decisive than congressional testimony portrayed. Additionally, they found that research conducted since the statute was passed into law did not support the 'inherent stress' rationale for early mandatory retirement.

Changes in life expectancy, especially healthy life span, coupled with the Broach and Schroeder findings support the re-examination of the Age 56 rule and the related maximum-age-at-entry policy.

Heil (1999a, 1999b), VanDeventer and Baxter (1984) and Trites and colleagues (Trites and Cobb 1962; Trites, 1965; Trites, Miller, & Cobb, 1965) examined the maximum age-at-entry rule. VanDeventer and Baxter (1984) found a strong relationship between age at entry and pass rates for ATCS students at the FAA Academy. At the time the data were collected, the FAA used the non-radar screen as part of the selection process. The decline from almost 80% passing at age 22 to slightly more than 50% passing at age 32 was mitigated by previous ATC experience or experience as a commercial pilot. It is unclear if these findings would be altered by the changes made to the FAA Academy ATCS training program; however, establishing a firmer scientific foundation for this policy may reduce the likelihood of litigation or other actions brought as applicants 'time out' of the hiring process.

Previous Activity on this Task
None.

Proposed or Planned Research
We propose to conduct a workshop at which the leading researchers in Adult Development, Skill Acquisition, and Skill Retention will discuss various approaches to answering our research questions. This, in combination with a thorough literature review, will allow us to design both a cross-sectional[1] and a cross-lagged longitudinal[2] study to provide the FAA with the data needed

[1] Cross-sectional studies involve two or more age-groups participating in one time of measurement. This type of research has the benefit of being quickly accomplished. The drawback to this type of research is that other factors than age (e.g. generational effects) may be contributing to the differences between the groups.

to make informed decisions about maximum age-at-entry, mandatory retirement age, and the issuing of waivers.

Research Question(s)
Should ATCSs be required to retire at age 56?
If not, what age or other standard should be used?
What standards should be met to receive a waiver to continue working past age 56?
Should the maximum age-at-entry be 31?
If not, what age or other standard should be used?

Technical Approach

Current Year
We will conduct an extensive literature review and produce a technical report synthesizing the adult development, skill acquisition, and skill retention literature. The proposed workshop, conducted this year, will contribute to our understanding of the current research in these areas. Workshop participants will be asked to contribute to the technical report.

Out-years
In 2011, we will use the information gained from the literature review and workshop to design a cross-sectional (comparison of younger and older controllers) study of ATCS skills and abilities. Previous research suggests that job performance is the appropriate outcome measure. However, we will need to develop suitable measures of job performance.[3] This research should provide us with insight into the nature of age-related differences in ATCS performance. In addition, we will design a cross-lagged longitudinal study (see table 1) to determine if changes in statute and/or policy are needed.

We are planning to complete the cross-sectional study in time to produce a technical report early in FY 11. The cross-lagged longitudinal study will result in technical reports after each time of measurement.

Air Traffic Resources Required
ATCSs will be needed for participation in both the cross-sectional and cross-lagged longitudinal studies.

Calibration
None

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[2] Cross-lagged longitudinal studies involve following several age-groups across several times of measurement, adding new young groups and dropping the oldest groups as the research progresses. These studies allow the researcher to statistically control differences between the groups that are not due to age. However, they are time consuming and expensive to conduct.
[3] These measures may be useful in the Longitudinal Validation of AT-SAT (task 1).

FY10 Milestone Schedule		
Description	Proposed Start Date	Proposed Completion Date
Literature Review	10/01/09	3/31/10
Workshop	1/15/10	9/30/10
Technical Report 1: lessons from the workshop and literature review	9/30/10	12/31/10
Design Cross-Sectional Study (C-ERA 1)	10/01/10	1/15/11
Data collection for the cross-sectional study	2/15/11	9/15/11
Design Cross-lagged longitudinal Study (C-ERA 2)	10/01/10	1/31/11
Data collection for epoch 1 of the cross-lagged longitudinal study	9/30/11	12/31/11
Technical Report 2: Results of C-ERA 1	10/01/11	12/31/11

FY10 Deliverables		
Description	Proposed completion date	Actual completion date
Workshop on Skill Acquisition and Retention across the Adult Lifespan.	9/30/2010	
Supporting materials will be provided at the request of the AJP-61 Program Management. These include power point charts and briefing slides for TCRG meetings, abstracts for reports that don't already include them, quarterly reports, and text for the annual report summarizing the year's activities.	As needed	